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(54) Title: ADJUVANT COMBINATION FORMULATIONS

(57) Abstract: The use of an aminoalkyl glucosamine phosphate compound, or a derivative or analog thereof, in combination with a cytokine or lymphokine such as granulocyte macrophage colony stimulating factor or interleukin-12, is useful as an adjuvant combination in an antigenic composition to enhance the immune response in a vertebrate host to a selected antigen.



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## INTERNATIONAL SEARCH REPORT

International Application No

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K39/39 A61P31/00 A61P31/18 A61P35/00 A61P37/00  
 A61P25/18 //A61K39/21, A61K39/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>WO 98 50399 A (RIBI IMMUNOCHEM RESEARCH INC) 12 November 1998 (1998-11-12)</p> <p>abstract  page 2, line 18 - line 27  page 4, line 27 -page 5, line 28  page 6, line 7 - line 8  example 20  page 76, line 22 -page 88, line 25  page 106, line 5 -page 113</p> <p style="text-align: center;">--- -/-</p>	<p>1-13,  20-32,  39-42,  49-51,  56, 61-66</p>

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \* & \* document member of the same patent family

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10/10/2002

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## INTERNATIONAL SEARCH REPORT

In International Application No

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>WO 00 60084 A (SMITHKLINE BEECHAM BIOLOG ;VINALS Y DE BASSOLS CARLOTA (BE); CORIX) 12 October 2000 (2000-10-12)</p> <p>page 22, line 6 -page 23, line 7 page 25, line 7 - line 19 page 26, line 19 - line 27 claims 25,26</p> <p>---</p>	<p>1-13, 20-32, 39-42, 49-51, 56,61-66</p>
Y	<p>US 5 980 911 A (CORNER LEIGH AUSTIN ET AL) 9 November 1999 (1999-11-09)</p> <p>the whole document</p> <p>---</p>	<p>1-13, 20-32, 39-42, 49-51, 56,61-66</p>
Y	<p>US 5 679 356 A (BONNEM ERIC M ET AL) 21 October 1997 (1997-10-21) cited in the application</p> <p>the whole document</p> <p>---</p>	<p>1-13, 20-32, 39-42, 49-51, 56,61-66</p>
Y	<p>WO 98 57659 A (SMITHKLINE BEECHAM BIOLOG ;BOON THIERRY (BE); SILLA SILVIA (BE); U) 23 December 1998 (1998-12-23)</p> <p>the whole document</p> <p>---</p>	<p>1-13, 20-32, 39-42, 49-51, 56,61-66</p>
A	<p>HAYNES B F ET AL: "HIV type 1 V3 region primer-induced antibody suppression is overcome by administration of C4-V3 peptides as a polyvalent immunogen." AIDS RESEARCH AND HUMAN RETROVIRUSES. UNITED STATES FEB 1995, vol. 11, no. 2, February 1995 (1995-02), pages 211-221, XP001108967 ISSN: 0889-2229 cited in the application abstract table 1</p> <p>---</p> <p>--- -/--</p>	<p>14-16, 33-35, 43-45</p>

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>KURODA MARCELO J ET AL: "Analysis of Gag-specific cytotoxic T lymphocytes in simian immunodeficiency virus-infected rhesus monkeys by cell staining with a tetrameric major histocompatibility complex class I-peptide complex." JOURNAL OF EXPERIMENTAL MEDICINE, vol. 187, no. 9, 4 May 1998 (1998-05-04), pages 1373-1381, XP002214739 ISSN: 0022-1007 cited in the application abstract column 2, paragraph 3</p>	14,17, 33,36, 43,46
A	<p>LIAO HUA-XIN ET AL: "Induction of antibodies in guinea pigs and rhesus monkeys against the human immunodeficiency virus type 1 envelope: Neutralization of nonpathogenic and pathogenic primary isolate simian/human immunodeficiency virus strains." JOURNAL OF VIROLOGY, vol. 74, no. 1, January 2000 (2000-01), pages 254-263, XP002214740 ISSN: 0022-538X cited in the application abstract page 255, column 2, paragraph 1</p>	14,18, 19,33, 37,38, 43,47,48
A	<p>WO 99 27944 A (SCHENK DALE B ;ATHENA NEUROSCIENCES INC (US)) 10 June 1999 (1999-06-10) cited in the application abstract page 3, line 18 - line 28 page 14, line 30 - line 34</p>	52-55, 57-60

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US 01/46943**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:  
  
Although claims 29-50, 56-60 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

In International Application No

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